

# 10 Dividing and fractions

We are learning about division problems that have fractional answers.



A calculator.

## NUMBER KNOWLEDGE

Numeracy Book 4

Number Fans

Reading Decimal Fractions

More Reading of Decimal Fractions

In AM1 and this book

Multiplying by 10, 100 and 1000

..... page 151 (AM1)

Dividing a two digit number by a one digit number

..... page 164 (AM1)

Reading and writing decimals

..... page 178

Fractions, decimals and percentages

..... page 190

## Activity

- 1 What numbers could you key in the gaps to make 0.5 appear on the calculator screen?

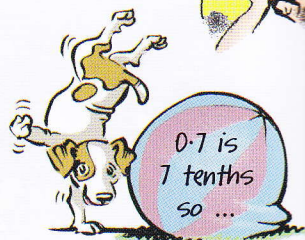
$$\square \div \square = \square \quad 0.5$$

- 2 What numbers could you key in the gaps to make these appear on the calculator screen?

Use your calculator to check if you are right.

|   |                                  |       |   |                                  |           |
|---|----------------------------------|-------|---|----------------------------------|-----------|
| a | $\square \div \square = \square$ | 0.7   | b | $\square \div \square = \square$ | 0.25      |
| c | $\square \div \square = \square$ | 0.45  | d | $\square \div \square = \square$ | 2.75      |
| e | $\square \div \square = \square$ | 0.125 | f | $\square \div \square = \square$ | 0.3333333 |

Think about what 0.5 is as a fraction and then think about some numbers that will divide to give you that fraction.



- 3 Lucy worked out that it had taken her 249 minutes to walk the first 24 km of the Milford Track.

On average how many minutes did she take for each kilometre?

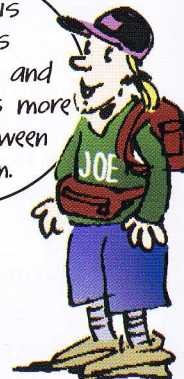


$24 \times 10 = 240$   
and  $249 - 240 = 9$   
so the answer is  $10\frac{3}{8}$  minutes.

I get 10.375 on my calculator.



I think it is 10 minutes per kilometre and then 9 minutes more to share between the 24 km.



- a Explain how Millee got her remainder of  $\frac{3}{8}$ .
- b Who got the right answer?
- c How do Millee's and Sam's answers relate to each other?



Write the answers to **question 4** with the remainder expressed as

- i** a fraction    **ii** a decimal    **iii** a whole number

Explain how you got your answers. Sam has done  $8 \div 5$  to show you.

- 4 a**  $9 \div 4$     **b**  $7 \div 4$     **c**  $6 \div 5$     **d**  $7 \div 3$

- e** Admir won eight minutes extra time on a game at Time Out. It was to be shared by three friends. How much time did each get?

- f** Mary had a 15 m roll of wallpaper left to paper one wall of her living room. She divided the roll into six equal pieces, each the height of the wall. How high is the wall in her living room?

- i**  $8 \div 5 = 1\frac{3}{5}$  and  
**ii**  $8 \div 5 = 1.6$  and  
**iii**  $8 \div 5 = 1 \text{ r } 3$

- 5** 14.7 hectares of land was divided into three equal blocks for BMX cycle competition tracks. What is the area of each block?

- 6** A market gardener delivered 51.2 kg of potatoes to a marae. Eight hangi pits were dug and the potatoes shared equally. What was the weight of potatoes in each pit?

- 7** Find the missing numbers.

**a**  $1 \div \boxed{?} = \frac{1}{9}$

**b**  $8 \div \boxed{?} = 2\frac{2}{3}$

**c**  $18 \div \boxed{?} = 1\frac{7}{11}$

**d**  $\boxed{?} \div 7 = 4\frac{2}{7}$

**e**  $\boxed{?} \div 4 = 3\frac{3}{4}$

**f**  $\boxed{?} \div 9 = 3\frac{1}{3}$

**g**  $\boxed{?} \div 8 = 3\frac{1}{4}$

**h**  $\boxed{?} \div 6 = 2\frac{2}{3}$

**i**  $12 \div \boxed{?} = 2.4$

**j**  $15 \div \boxed{?} = 2.5$

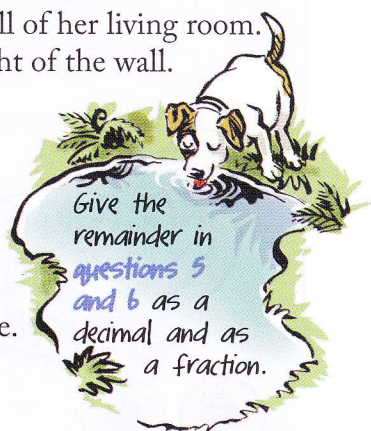
**k**  $30 \div \boxed{?} = 3.75$

**l**  $\boxed{?} \div 6 = 1.5$

**m**  $\boxed{?} \div 8 = 3.5$

**n**  $\boxed{?} \div 8 = 2.75$

**o**  $\boxed{?} \div 5 = 9.4$



## 8 Challenge

Sam divided a number by 8 and got the remainder 0.375.

What is the smallest number he could have divided by 8 to get this remainder?

What is the second smallest, and the third smallest?

Keep writing down the next smallest numbers he could have divided.

Describe the pattern.

Predict what the twentieth and one hundredth smallest numbers will be.

I found the smallest two numbers I could have divided to get 1.375 because that has remainder 0.375.

